

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1 (Currently Amended). A method of driving a liquid crystal display device,

said liquid crystal display device including:

an orientation film over a substrate; and

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a liquid crystal material over the orientation film, said liquid crystal material having a chiral smectic C_R phase ~~and being continuously switched according to an electric field applied thereto,~~

wherein a brightness of said liquid crystal material increases monotonically according to a voltage value applied to said liquid crystal material,

said method comprising the steps of:

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displaying a black level by the liquid crystal material in a first period;

applying a voltage to the liquid crystal material for a gradation display in a second period,

wherein the second period comes before or after the first period.

2. (Currently Amended) A method of driving a liquid crystal display device,

said liquid crystal display device including:

an orientation film over a substrate; and

a liquid crystal material over the orientation film, said liquid crystal material having a chiral smectic C_R phase ~~and being continuously switched according to an electric field applied thereto,~~

wherein a brightness of said liquid crystal material increases monotonically according to a voltage value applied to said liquid crystal material,

said method comprising the steps of:

canceling out a spontaneous polarization of the liquid crystal material in a first period; and

applying a voltage to the liquid crystal material for a gradation display in a second period,

wherein the second period comes before or after the first period.

3 (Currently Amended). A method of driving a liquid crystal display device:

said liquid crystal display device including:

an orientation film over a substrate; and

a liquid crystal material over the orientation film, said liquid crystal material having a chiral smectic C_R phase ~~and being continuously switched according to an electric field applied thereto,~~

wherein a brightness of said liquid crystal material increases monotonically according to a voltage value applied to said liquid crystal material,

said method comprising the steps of:

applying a voltage of 0V to the liquid crystal material in a first period; and

applying a voltage to the liquid crystal material for a gradation display in a second period,

wherein the second period comes before or after the first period.

4. (Original) A method according to claim 1,

wherein a plurality of active elements are formed over the substrate.

5. (Original) A method according to claim 4,

wherein each of the plurality of active elements applies a voltage to the liquid crystal material, and

wherein the voltage has an upper limit.

6. (Original) A method according to claim 5,

wherein the upper limit of the voltage has an absolute value of 7 V or less.

7. (Original) A method according to claim 1,

wherein a spontaneous polarization of the liquid crystal material is 40 nC/cm^2 - 150 nC/cm^2 , and

wherein a thickness of the orientation film is 15 nm - 75 nm.

8. (Original) A method according to claim 1,

wherein a spontaneous polarization of the liquid crystal material is 20 nC/cm^2 - 40 nC/cm^2 , and

wherein a thickness of the orientation film is 30 nm - 150 nm .

9. (Original) A method according to claim 1,

wherein a spontaneous polarization of the liquid crystal material is 40 nC/cm^2 or less.

10. (Original) A method according to claim 1,

wherein a first response time is defined as a response time of the liquid crystal material between a first voltage and a second voltage having an opposite polarity to the first voltage not via a voltage of 0V ,

wherein a second response time is defined as a response time of the liquid crystal material between a first voltage and a second voltage having an opposite polarity to the first voltage via the voltage of 0V ,

wherein the second response time is five times or more as short as the first response time.

11. (Original) A method according to claim 4,

wherein each of the plurality of active elements is connected in series to an auxiliary capacitor.

12 (Currently Amended). A method of driving a liquid crystal display device,

said liquid crystal display device including:

a plurality of thin film transistors being provided over a substrate;
an auxiliary capacitor being connected in series to each of the plurality of thin film transistors;
an orientation film over each of the plurality of thin film transistors; and
a liquid crystal material over the orientation film, said liquid crystal material having a spontaneous polarization ~~and being continuously switched according to an electric field applied thereto,~~

wherein a brightness of said liquid crystal material increases monotonically according to a voltage applied to said liquid crystal material.

said method comprising the steps of:

applying a voltage of 0V to the liquid crystal material in a first period through a single thin film transistor of said plurality of thin film transistors; and

performing a gradation display in a second period through said single thin film transistor,

wherein the second period comes before or after the first period[[,]]

~~wherein the first period and the second period repeat.~~

13. (Original) A method according to claim 12,

wherein a transmittance of the liquid crystal material is uniquely determined when voltages having a same absolute value and opposite polarities are applied thereto.

14. (Original) A method according to claim 12,
wherein the liquid crystal material has a same tilt angle when voltages having a same absolute value and opposite polarities are applied thereto.

15. (Original) A method according to claim 12,
wherein the liquid crystal material has a chiral smectic C_R phase.

16. (Original) A method according to claim 1,
wherein a spontaneous polarization of the liquid crystal is 100 nC/cm² or less, and
wherein the thickness of the orientation film is 75 nm or less.

17. (Original) A method according to claim 2,
wherein a plurality of active elements are formed over the substrate.

18. (Original) A method according to claim 17,
wherein each of the plurality of active elements applies a voltage to the liquid crystal material, and
wherein the voltage has an upper limit.

19. (Original) A method according to claim 18,
wherein the upper limit of the voltage has an absolute value of 7 V or less.

20. (Original) A method according to claim 2,
wherein the spontaneous polarization of the liquid crystal material is 40 nC/cm^2 - 150 nC/cm^2 , and
wherein a thickness of the orientation film is 15 nm - 75 nm .

21. (Original) A method according to claim 2,
wherein the spontaneous polarization of the liquid crystal material is 20 nC/cm^2 - 40 nC/cm^2 , and
wherein a thickness of the orientation film is 30 nm - 150 nm .

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22. (Original) A method according to claim 2,
wherein the spontaneous polarization of the liquid crystal material is 40 nC/cm^2 or less.

23. (Original) A method according to claim 2,
wherein a first response time is defined as a response time of the liquid crystal material between a first voltage and a second voltage having an opposite polarity to the first voltage not via a voltage of 0V ,
wherein a second response time is defined as a response time of the liquid crystal material between a first voltage and a second voltage having an opposite polarity to the first voltage via the voltage of 0V ,

wherein the second response time is five times or more as short as the first response time.

24. (Original) A method according to claim 17,
wherein each of the plurality of active elements is connected in series to an auxiliary capacitor.

25. (Original) A method according to claim 2,
wherein the spontaneous polarization of the liquid crystal is 100 nC/cm^2 or less, and
wherein the thickness of the orientation film is 75 nm or less.

26. (Original) A method according to claim 3,
wherein a plurality of active elements are formed over the substrate.

27. (Original) A method according to claim 26,
wherein each of the plurality of active elements applies a voltage to the liquid crystal material, and
wherein the voltage has an upper limit.

28. (Original) A method according to claim 27,
wherein the upper limit of the voltage has an absolute value of 7 V or less.

29. (Original) A method according to claim 3,
wherein a spontaneous polarization of the liquid crystal material is 40 nC/cm^2 - 150 nC/cm^2 , and
wherein a thickness of the orientation film is 15 nm - 75 nm .

30. (Original) A method according to claim 3,
wherein a spontaneous polarization of the liquid crystal material is 20 nC/cm^2 - 40 nC/cm^2 , and
wherein a thickness of the orientation film is 30 nm - 150 nm .

31. (Original) A method according to claim 3,
wherein a spontaneous polarization of the liquid crystal material is 40 nC/cm^2 or less.

32. (Original) A method according to claim 3,
wherein a first response time is defined as a response time of the liquid crystal material between a first voltage and a second voltage having an opposite polarity to the first voltage not via the voltage of 0V ,
wherein a second response time is defined as a response time of the liquid crystal material between a first voltage and a second voltage having an opposite polarity to the first voltage via the voltage of 0V ,
wherein the second response time is five times or more as short as the first response time.

33. (Original) A method according to claim 26,
wherein each of the plurality of active elements is connected in series to an auxiliary
capacitor.

34. (Original) A method according to claim 3,
wherein a spontaneous polarization of the liquid crystal is 100 nC/cm^2 or less, and
wherein the thickness of the orientation film is 75 nm or less.

35. (Previously Presented) A method according to claim 1,
wherein said liquid crystal material is driven by active matrix driving.

36. (Previously Presented) A method according to claim 2,
wherein said liquid crystal material is driven by active matrix driving.

37. (Previously Presented) A method according to claim 3,
wherein said liquid crystal material is driven by active matrix driving.

38. (Previously Presented) A method according to claim 1,
wherein said black level is displayed by applying a voltage of 0V to the liquid crystal
material.

39. (Currently Amended) A method according to claim 1,

wherein a quantity of light changes by changing ~~a values of a~~ the voltage value.

40. (Currently Amended) A method according to claim 2,

wherein a quantity of light changes by changing ~~a values of a~~ the voltage value.

41. (Currently Amended) A method according to claim 3,

wherein a quantity of light changes by changing ~~a values of a~~ the voltage value.
